Amendments to the Claims

This listing of claims will replace all prior version and listing of claims in the instant application.

Listing of Claims

Claim 1 (currently amended): An isolated nucleic acid molecule comprising a polynucleotide having ~~a nucleotide sequence~~ at least 95% sequence identity ~~identical~~ to a sequence selected from the group consisting of:

(a) a nucleotide sequence encoding the tomato β-galactosidase II polypeptide having the complete amino acid sequence of SEQ ID NO: 11 and designated TBG4 ~~and encoded by the cDNA sequence contained in Gen Bank Accession No. AF020390~~;

(b) a nucleotide sequence encoding the mature tomato β-galactosidase II polypeptide, wherein said mature polypeptide is produced by cleavage of the leader sequence from the complete polypeptide ~~having the amino acid sequence from about position 24 to about position 724 of the sequence of SEQ ID NO: 11 and designated TBG4 and encoded by the cDNA sequence contained in Gen Bank Accession No. AF020390~~; and

(c) a nucleotide sequence fully complementary to either of the nucleotide sequences in (a) or (b), above,

wherein said nucleotide sequence having at least 95% sequence

identity encodes a polypeptide having β-galactosidase activity.

Claim 2 (previously presented): The nucleic acid molecule of claim 1 wherein said polynucleotide has the complete nucleotide sequence of SEQ ID NO: 4.

Claim 3 (previously presented): The nucleic acid molecule of claim 1 wherein said polynucleotide has the nucleotide sequence of SEQ ID NO: 4 encoding the β-galactosidase II polypeptide having the amino acid sequence designated TBG4.

Claim 4 (previously presented): The nucleic acid molecule of claim 1 wherein said polynucleotide has the nucleotide sequence of SEQ ID NO: 4 encoding the mature polypeptide, wherein said mature polypeptide is produced by cleavage of the leader sequence from the complete polypeptide ~~having the amino acid sequence from about 24 to about 724 in the amino acid sequence designated TBG4~~.

Claim 5 (withdrawn): The nucleic acid molecule of claim 1 wherein said polynucleotide has the complete nucleotide sequence of the cDNA clone contained in Gen Bank Accession No. AF023847.

Claim 6 (withdrawn): The nucleic acid molecule of claim 1 wherein

said polynucleotide has the complete nucleotide sequence of the cDNA clone contained in Gen Bank Accession No. AF154420.

Claim 7 (withdrawn): The nucleic acid molecule of claim 1 wherein said polynucleotide has the complete nucleotide sequence of the cDNA clone contained in Gen Bank Accession No. 154421.

Claim 8 (currently amended): The nucleic acid molecule of claim 1 wherein said polynucleotide has the complete nucleotide sequence of the cDNA sequence ~~contained in Gen Bank Accession No. AF020390~~ of SEQ ID NO: 11.

Claim 9 (withdrawn): The nucleic acid molecule of claim 1 wherein said polynucleotide has the complete nucleotide sequence of the cDNA clone contained in Gen Bank Accession No. AF154423.

Claim 10 (withdrawn): The nucleic acid molecule of claim 1 wherein said polynucleotide has the complete nucleotide sequence of the cDNA clone contained in Gen Bank Accession No. AF154424.

Claim 11 (withdrawn): The nucleic acid molecule of claim 1 wherein said polynucleotide has the complete nucleotide sequence of the cDNA clone contained in Gen Bank Accession No. AF154422.

Claim 12 (previously presented): An isolated nucleic acid molecule comprising a polynucleotide which hybridizes under stringent hybridization conditions to a polynucleotide having a nucleotide sequence identical to the nucleotide sequence in (a), (b), or (c) of claim 1, wherein said polynucleotide which hybridizes does not hybridize under stringent hybridization conditions to a polynucleotide having a nucleotide sequence consisting of only A residues or of only T residues, ~~and~~ wherein stringent hybridization conditions are overnight incubation at 42°C in a solution comprising 50% formamide, 5 X SSC (150 mM NaCl, 15 mM trisodium citrate), 50 mM sodium phosphate (pH 7.6), 5 X Denhardt's solution, 10% dextran sulfate and 20 µg/ml denatured, sheared salmon sperm DNA, followed by washing in 0.1 X SSC at about 65°C, and wherein said polynucleotide has a nucleotide sequence which encodes a polypeptide having β-galactosidase activity.

Claim 13 (cancelled)

Claim 14 (previously presented): A method for making a recombinant vector comprising inserting the isolated nucleic acid molecule of claim 1 into a vector.

Claim 15 (original): A recombinant vector produced by the method

of claim 14.

Claim 16 (original): A method of making a recombinant host cell comprising introducing the recombinant vector of claim 15 into a host cell.

Claim 17 (original): A recombinant host cell produced by the method of claim 16.

Claim 18 (previously presented): A recombinant method for producing a β-galactosidase II polypeptide, comprising culturing the recombinant host cell of claim 17 under conditions such that said polypeptide is expressed and recovering said polypeptide.

Claim 19 (withdrawn): An isolated β-galactosidase II polypeptide comprising an amino acid sequence at least 95% identical to a sequence selected from the group consisting of:

a) amino acid sequence at about positions 24-724 selected from the group consisting of sequences SEQ ID NO: 8, SEQ ID NO: 9, SEQ ID NO: 10, SEQ ID NO: 11, SEQ ID NO: 12, SEQ ID NO: 13, SEQ ID NO: 14, SEQ ID NO: 15 and SEQ ID NO: 16 and designated TBG1, TBG2, TBG3, TBG4, TBG5, TBG6 and TBG7, respectively as shown in Figure 2; and

b) amino acid sequence as encoded by the cDNA clone selected

from the group consisting of cDNA clones contained in Gen Bank Accession No. AF023847, AF154420, AF154421, AF020390, AF154423, AF154424 and AF154422.

Claim 20 (withdrawn): An isolated polypeptide comprising an epitope-bearing portion of the β-galactosidase II protein.

Claim 21 (withdrawn): An isolated antibody that binds specifically to a β-galactosidase II polypeptide of claim 20.

Claim 22 (currently amended): An isolated nucleic acid molecule comprising a polynucleotide having ~~a nucleotide sequence~~ at least 95% sequence identity ~~identical~~ to a sequence selected from the group consisting of:

(a) a nucleotide sequence encoding the tomato β-galactosidase II polypeptide having the complete amino acid sequence of SEQ ID NO: 11 and designated TBG4 ~~and encoded by the cDNA sequence contained in Gen Bank Accession No. AF020390~~;

(b) a nucleotide sequence encoding the mature tomato β-galactosidase II polypeptide, wherein said mature polypeptide is produced by cleavage of the leader sequence from the complete polypeptide ~~having the amino acid sequence from about position 24 to about position 724 of the sequence of SEQ ID NO: 11 and designated TBG4 and encoded by the cDNA sequence contained in Gen~~

~~Bank Accession No. AF020390~~; and

(c) a nucleotide sequence fully complementary to either of the nucleotide sequences in (a) or (b), above,

wherein said nucleotide sequence having at least 95% sequence identity encodes a polypeptide having β-galactosidase activity.

Claim 23 (withdrawn): The nucleic acid molecule of claim 22 wherein said polynucleotide has a complete nucleotide sequence in Figure 2 selected from the group consisting of SEQ ID NOs: 1-3 and 5-7.

Claim 24 (withdrawn): The nucleic acid molecule of claim 22 wherein said polynucleotide has a nucleotide sequence in Figure 2 selected from the group consisting of SEQ ID NOs: 1-3 and 5-7 encoding the β-galactosidase polypeptide having the complete amino acid sequence designated TBG1-3 and 5-7, respectively.

Claim 25 (withdrawn): The nucleic acid molecule of claim 22 wherein said polynucleotide has the nucleotide sequence in Figure 2 selected from the group consisting of SEQ ID NOs: 1-3 and 5-7 encoding the mature polypeptide having the amino acid sequence designated TBG1-3 and 5-7, respectively.

Claim 26 (currently amended): The nucleic acid molecule of claim

22 wherein said polynucleotide has the complete nucleotide sequence of the cDNA sequence contained in ~~Gen Bank Accession No. AF020390~~ SEQ ID NO: 11.

Claim 27 (withdrawn): A method of modifying cell wall metabolism in a plant which comprises transforming said plant with a DNA construct adapted to modify the activity of a β-galactosidase, growing said plant or its descendent and selecting a plant having modified cell wall characteristics, said construct comprising a transcriptional initiation region operative in plants operably linked to a DNA sequence encoding at least one β-galactosidase.

Claim 28 (withdrawn): A method as claimed in claim 27, wherein said DNA sequence is selected from the group consisting of the sequences of nucleic acid molecules claimed in claim 1 or claim 22.

Claim 29 (withdrawn): A plant cell transformed with a nucleic acid molecule as claimed in claim 1 or claim 22.

Claim 30 (withdrawn): A plant derived from a plant cell as claimed in claim 29.

Claim 31 (withdrawn): A plant seed derived from a plant as

claimed in claim 30.

Claim 32 (withdrawn): A method for modifying β-galactosidase gene expression in a plant comprising transforming said plant with a nucleic acid molecule as claimed in claim 1 or claim 22, growing the transformed plant and selecting a plant having modified β-galactosidase gene expression when compared with an untransformed plant.